

DETAILED ACTION

Summary

1. This is the second Office Action based on Application No. 10/576,260 filed on April 14, 2006.
2. Claims 1, 3-4, 6, and 8-11 are currently pending and have been fully considered.
3. Claims 2, 5, and 7 are withdrawn from consideration.

Specification

4. The specification is objected to because of the following informality: the title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed

Claim Objections

5. Claims 10 and 11 are objected to under 37 CFR 1.75 as being a substantial duplicate of claims 1 and 4, respectively. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
7. Claims 1, 3-4, 6 and 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over YOSHIKAWA et al. (JP 10-083818) in view of NUMATA et al. (US 2003/0082453 A1) and ADACHI et al. (US Pat. No. 5,789,114).

With respect to Claims 1, 3, 4, 6, 8, 9 and 11, YOSHIKAWA et al. discloses a nonaqueous electrolyte battery (para. 0001) comprising a positive electrode including a positive electrode active material layer (Claim 1 of YOSHIKAWA et al.); a negative electrode including a negative electrode active material layer (Claim 1 of YOSHIKAWA et al.); a nonaqueous electrolyte (Claim 1 of YOSHIKAWA et al.); and a conductive material contained in the positive electrode active material layer containing an amorphous carbon and zirconium nitride (abstract, Claims 1 and 5 and paragraphs 7 and 12 of YOSHIKAWA et al.).

However, YOSHIKAWA et al. fails to disclose that the amorphous carbon is carbon black and has a specific surface area of at least $1 \text{ m}^2/\text{g}$ and less than $800 \text{ m}^2/\text{g}$ and that the zirconium nitride have particles of at least $0.2 \text{ }\mu\text{m}$ and not more than $5 \text{ }\mu\text{m}$ in average particle diameter.

NUMATA et al. teaches zirconium nitride as a conductive agent in the positive electrode that is uniformly dispersed therein and the size of the nitride additive is selected depending on the particle size of the positive electrode active material, and the particle size is preferably $10 \text{ }\mu\text{m}$ or less (para. 36).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the particle size of the zirconium nitride in the positive electrode of YOSHIKAWA et al. to be $10 \text{ }\mu\text{m}$ or less in order to ensure uniform dispersion as taught by NUMATA et al. However, YOSHIKAWA et al. as modified by NUMATA et al. does not disclose the particle range of at least $0.2 \text{ }\mu\text{m}$ and not more than $5 \text{ }\mu\text{m}$. It would have been obvious to one of ordinary skill in the art to have the particle size be in the range of at least $0.2 \text{ }\mu\text{m}$ and not more than $5 \text{ }\mu\text{m}$ because the courts have held that in the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a *prima facie* case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

ADACHI et al. teaches adding carbon black having a specific surface area of $60 \text{ m}^2/\text{g}$ to the positive electrode active material of a lithium battery in order to improve electrical conductivity of the positive electrode active material (col. 3, lines 50-66; col. 6, lines 39-65).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use carbon black as the amorphous carbon in YOSHIKAWA et al., with a specific surface area of 60 m²/g in the positive electrode of YOSHIKAWA et al. as modified by NUMATA et al. to improve electrical conductivity of the positive active material.

Response to Arguments

8. Applicant's arguments filed March 7, 2008 have been fully considered and are persuasive. After further consideration by the examiner, new ground(s) of rejection are applied to the claims for reasons given above.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SANDRA LE whose telephone number is (571) 270-5121. The examiner can normally be reached on Monday-Thursday, 8:00am-5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Susy Tsang-Foster can be reached on (571) 272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For

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SL

/Susy Tsang-Foster/

Supervisory Patent Examiner, Art Unit 1795